

21 May 2001

Donna Wieting, Chief,
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Dear Ms Wieting,

We are writing to comment on the application from the US Navy for a Letter of Authorization (LOA) to take marine mammals incidental to operations of the Surveillance Towed Array Sensor System (SURTASS) Low Frequency Active (LFA) sonar.

Combined, we have conducted 23 years of cetacean research, involving field research on a diversity of cetacean species (both coastal and offshore). Our research has focused on various aspects of behaviour, distribution, and ecology, including diving behaviour, movements, and acoustic behaviour. In addition we have both helped to co-ordinate research into causes of marine mammal strandings both in the Atlantic and Pacific.

Overall, it appears clear that the final Overseas Environmental Impact Statement (OEIS) and Environmental Impact Statement (EIS) drafted by the US navy have paid only lip service to the comments submitted by many concerned parties regarding the drafts of these documents. It is obvious that many of our comments (including corrections of fact, see below) were not given due consideration, leading us to suspect the same treatment for comments of many others.

Beaked whale strandings

Although the Navy has now included a section discussing "information regarding strandings of beaked whales" (p3.2-45), this section is particularly dismissive. Despite mounting evidence of the correlation between naval exercises and stranding events (particularly of beaked whales), this document maintains that "no such correlative study can provide evidence for causation". Although this is true, it applies equally to virtually every known scientific "fact", e.g., we cannot **prove** that gravity **causes** an apple to fall from a tree! The scientific process is aimed at demonstrating likelihood rather than finding absolute proof. Thus, to our minds, and obviously to the minds of the many scientists who responded to the Draft EIS, these studies (Simmonds and Lopez-Jurado 1991, Frantzis 1998, and Balcomb 2001) go a long way toward suggesting that high intensity underwater sounds like LFA sonar may be particularly dangerous to certain marine mammal species. Despite NMFS alleged intention (response to Comment 46: "NMFS must make its determinations under section 101(a)(5)(A) of the MMPA based on the best scientific information available"), it appears to have held commentary in a non-peer reviewed document in higher regard than published peer-reviewed work.

We have a number of years of experience in dealing with stranding events (e.g., Baird et al. 1989, Baird and Guenther 1995, Baird and Hooker 2000, Lucas and Hooker 1999, Willis and Baird 1998). We can therefore state with some authority that it is extremely rare to be able to identify the cause of death for any stranded cetacean. However, the majority of stranding events are either single events interspersed in time and space, or involve a group of animals stranding at the same time and place. The nature of the strandings described by Simmonds and Lopez (1991), by Frantzis (1998) and by Balcomb (2001) are all therefore quite unusual, involving a far greater frequency of single strandings of certain species than is normal over such a short time-period. That there must have been a single cause for each extended stranding event is apparent, and although the simultaneous conduct of naval exercises offshore might have been co-incidental with the first report, it cannot have been so for all three events.

Negligible Take Status

The fatal nature of the response of Cuvier's beaked whales to sonar (Balcomb 2001) suggests that NMFS cannot maintain that this technology will cause "negligible take". In the Bahamas the use of such underwater sound has apparently caused a far greater effect on the local population of Cuvier's beaked whales than appears to satisfy NMFS small take concerns (response to comment 12: NMFS defines "'small numbers" to mean a portion of a marine mammal species or stock whose taking would have a negligible impact"). The apparent death of most or all Cuvier's beaked whales (likely a local population) around the Bahamas would not appear to satisfy this concern. The fact that the nature of the sonar system involved in the Bahamas is different from LFA sonar is irrelevant; the Bahamas incident demonstrates that such impacts are possible, and are of concern for LFA sonar.

In its response to Comment 38, "NMFS notes that its preliminary negligible impact determination is based on research conducted by independent scientists, funded by the US Navy, on 3 species of balenopterid whales, that were determined most likely to be affected by SURTASS LFA sonar noises". There is now a weight of evidence that beaked whales are at far greater risk from these operations than the species studied, and thus we suggest that the NMFS should revise its "negligible impact determination" accordingly.

Monitoring

The NMFS stresses (response to Comment 13) that "the Navy's proposed long-term monitoring (LTM) program will have a component to investigate any correlation between SURTASS LFA sonar transmissions and stranding events", thus acknowledging the concern regarding the effect of LFA sonar in causing deaths of marine mammals. However, it does not appear to take this threat particularly seriously. Strandings are by their nature coastal events, so may not be observed for offshore operations (as stated in response to Comment 19: "Because of the offshore nature of SURTASS LFA sonar operations, the Navy does not believe that there is a potential for SURTASS LFA sonar to result in marine mammal stranding incidents"). Therefore, it seems likely that in the offshore environment LFA operation could cause multiple whale deaths, but these would not likely be observed as coastal strandings. There appears to be little monitoring component for such a likelihood, and in fact there is likely no way of reliably detecting such deaths in the open ocean.

Although the goal of the monitoring program proposed by the navy is admirable, to attempt to reduce the effect of LFA sonar on some marine mammals, we remain unconvinced that it will

cannot reasonably detect marine mammals and turtles beyond a 1-km radius, or even some long-duration diving species within 1 km, it appears that LFA-type sounds may be dangerous at levels much less than the 180-dB threshold (e.g., Balcomb 2001). We acknowledge that the observer search distance cannot realistically be extended. The logical solution would therefore seem to be to reduce the source level of LFA sonar. In fact, we (O-053) and several others (e.g., O-020 and O-021) questioned the use of a 180 dB threshold based on previous evidence (Richardson et al. 1995). We would note that the response to this concern has not provided satisfactory justification for this threshold (but to some extent clouds the issue with discussion of temporary threshold shifts and citation of various workshops). The Navy maintains that the SURTASS-LFA system can be used for long-range acoustic detection. Since these (unspecified) long ranges must be orders of magnitude greater than the 1-km reduction zone from source output to 180-dB, this begs the question "why not reduce the source level?"

Secondly, and more importantly however, beaked whales and sperm whales appear to be the species most affected by this system, and these are the longest divers of all odontocetes. For many species the 30-minute monitoring period may not encompass a single surfacing period (e.g., northern bottlenose whale dives were often 35-40 mins long, with one 70 min dive recorded, Hooker and Baird 1999). Thus it appears that the species most at danger from this system are those most likely to go undetected by the monitoring program.

Geographic extent

There are several flaws in the reasoning governing the geographical extent of LFA operations. The 12-nm boundary extending from any coastline will only theoretically provide protection to obligate coastal and estuarine species. However, the majority of marine mammal species are distributed according to physical and biological oceanographic characteristics rather than geographical boundaries. The most productive ocean areas and those containing the highest cetacean biomass (above the continental shelves, see e.g., Kenney and Winn 1986) are those areas in which the US Navy is most likely to wish to test this system.

In this vein, this proposal appears to attempt to allow the use of LFA in as wide an area as possible. Rather than allowing LFA operation in all ocean areas, and setting up a process to define areas for exclusion, we would rather see the proponents of a project identify (scientifically) areas of the ocean which are essentially barren, or for which there will be only minimal impact on marine species.

Furthermore, the suggested process of nomination of areas for exclusion appears to involve a long drawn-out process: "NMFS anticipates that the time between nominating an area and publication of a final determination is likely to take 8-12 months". What will the status of such areas be during this time? Will LFA operations be halted in these areas until such time as a decision is reached? As several reviewers have noted, information on marine mammal distribution is sparse and often difficult to collect. It would therefore appear that such areas of high marine mammal abundance will only slowly become apparent to marine mammal scientists, but that as soon as they do become so, there should be some effective immediate mechanism in place to protect these areas.

One of the recommended areas for exclusion is the 200-m isobath off the North American East Coast, which in Table 2-3 of the EIS is listed as relevant to the species: northern right whale, sei

rarely if ever found in waters less than 200m deep (Hooker et al. 1999, a fact which was mentioned to Mr Johnson at the Hawaii LFA meeting 1999, and again in our comments (O-052) and those of others (e.g., O-021) regarding the draft EIS). The response of the navy that "this restriction would enhance protection to concentrations of the above species" is most certainly not true for bottlenose whales, which would likely receive absolutely no protection from this designation! The population of northern bottlenose whales in the Gully area is listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as vulnerable (Whitehead et al. 1997). Thus if this Biologically Important Area is intended to protect northern bottlenose whales, it should include their Gully habitat (approximately bounded by 43 S, 45 N, 60W and 58 E – with the appropriate geographic extension to ensure that sounds do not extend into this area at above an appropriate threshold).

The Gully has recently been designated by the Department of Fisheries and Oceans, Canada, as a pilot marine protected area. Such local and foreign designations of offshore protected areas generally undergo a rigorous review process. Particularly for cases such as this, in which NMFS is providing authorisation for activities which several other countries may not wish to be undertaken off their coasts, it would seem appropriate to respect their Protected Area or Marine Reserve designations.

In conclusion, we would hope that the recent beaked whale stranding events provide enough scientific information required by the NMFS to reassess the impact that high intensity sound such as SURTASS-LFA may have on marine mammals and to reject this application for an LOA for a small-take permit. However, if the NMFS does issue this permit, the concerns we outline above regarding mitigation and geographic coverage should be taken into account in the conditions to the permit.

Yours sincerely,



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REFERENCES

- Baird, R.W., K.M. Langelier and P.J. Stacey. 1989. First records of false killer whales, *Pseudorca crassidens*, in Canada. *Canadian Field-Naturalist* 103: 368-371.
- Baird, R.W., and T.J. Guenther. 1995. Account of harbour porpoise (*Phocoena phocoena*) strandings and bycatches along the coast of British Columbia. *Reports of the International Whaling Commission Special Issue* 16: 159-168.
- Baird, R.W. and Hooker, S.K. 2000. Ingestion of plastic and unusual prey by a juvenile harbour porpoise. *Marine Pollution Bulletin* 40: 719-720.
- Balcomb, K. 2001. Cetaceans and sonar – Bahamas strandings. Letter to Mr. J.S. Johnson (23/02/01).
- Frantzis, A. 1998. Does acoustic testing strand whales? *Nature* 392: 29.
- Kenney, R.D. and Winn, H.E. 1986. Cetacean high-use habitats of the northeast United States continental shelf. *Fishery Bulletin* 84: 345-357.
- Hooker, S.K. and Baird, R.W. 1999. Deep-diving behaviour of northern bottlenose whales, *Hyperoodon ampullatus* (Cetacea: Ziphiidae). *Proceedings of the Royal Society, London B*. 266: 671-676.
- Hooker, S.K., H. Whitehead, and S. Gowans. 1999. Marine protected area designation and the spatial and temporal distribution of cetaceans in a submarine canyon. *Conservation Biology* 13: 592-602.
- Lucas, Z.N., and S.K. Hooker. 2000. Cetacean strandings on Sable Island, Nova Scotia, 1970-1998. *Canadian Field-Naturalist* 114: 45-61.
- Richardson, W.J., C.R. Greene, C.I. Malme, and D.H. Thomson. 1995. *Marine mammals and noise*. Academic Press, San Diego.
- Simmonds, M.P. and Lopez-Jurado, L.F. 1991. Whales and the military. *Nature* 351: 448.
- Whitehead, H., Faucher, A., Gowans, S., and McCarrey, S. 1997. Status of the northern bottlenose whale, *Hyperoodon ampullatus*, in the Gully, Nova Scotia. *Canadian Field-Naturalist* 111: 287-292.
- Willis, P.M., and Baird, R.W. 1998. Sightings and strandings of beaked whales on the west coast of Canada. *Aquatic Mammals* 24:21-25.